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# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 1 of 4

## Complete if Known

Application Number 09/465,705  
 Filing Date December 17, 1999  
 First Named Inventor James Aweya  
 Art Unit 2682  
 Examiner Name David Odland  
 Attorney Docket Number 82269-2

JUL 07 2004

Technology Center 2000

## U.S. PATENT DOCUMENTS

Examiner	Cite No.	Document Number Number - Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
D.O.	A1	US 6,463,068 B1	10/08/2002	Lin et al.	
	A2	US 6,333,917 B1	12/25/2001	Lyon et al.	
	A11	US 6,011,795	01/04/2000	Varghese et al.	
	A12	US 5,781,772	07/14/1998	Wilkinson, III et al.	
	A13	US 6,067,574	05/23/2000	Tzeng	
	A14	US 6,018,524	01/25/2000	Turner et al.	
	A15	US 6,212,184 B1	04/03/2001	Venkatachary et al.	
	A16	US 6,266,706 B1	07/24/2001	Brodnik et al.	
	A17	US 6,223,172 B1	04/24/2001	Hunter et al.	
	A18	US 6,614,789 B1	09/02/2003	Yazdani et al.	
	A19	US 6,580,610 B1	05/06/2003	Eatherton et al.	
	A20	US 6,526,055 B1	02/25/2003	Perfman et al.	
	A21	US 6,529,477	03/04/2003	Toporek et al.	
	A22	US 6,424,626	07/23/2002	Kidambi et al.	
	A23	US 6,252,851	06/26/2001	Siu et al.	
	A24	US 6,215,769	04/10/2001	Ghani et al.	
	A25	US 5,541,919	07/30/1998	Yong et al.	
	A26	US 6,671,258	12/30/2003	Bonneau	
	A27	US 6,490,251 B2	12/03/2002	Yin et al.	
	A28	US 6,119,235	09/12/2000	Vaid et al.	
	A29	US 6,108,307	08/22/2000	McConnell et al.	
D.O.	A30	US 4,769,815	09/06/1988	Hinch et al.	

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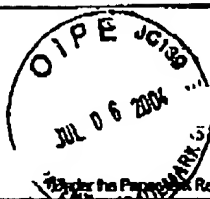
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# **INFORMATION DISCLOSURE STATEMENT BY APPLICANT**

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Sheet 2

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## **Complete if Known**

Application Number 09/465,705  
 Filing Date December 17, 1999  
 First Named Inventor James Awarya  
 Art Unit 2662  
 Examiner Name David Odell  
 Attorney Docket Number 82269-2

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David Odell Technology Center 2600

## **OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS**

Examiner Initials <sup>1</sup>	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
D.O.	C1	OTT, Teunis J.; LAKSHMAN, T.V.; WONG, Larry H.; "SRED: Stabilized RED", INFOCOMM '99, Eighteenth Annual Joint Conference of the IEEE Computer and Communications Societies Proceedings, IEEE, June 1999, Volume 3, Pages 1348-1355	
	C2	FENG, Wu-Chang; KANDLUR, Dip D.; SAHA, Debanjan; SHIN, Kang G.; "BLUE: A New Class of Active Queue Management Algorithms", U. Michigan CSE-TR-367-99, April 1999	
	C3	FENG, Wu-Chang; KANDLUR, Dip D.; SAHA, Debanjan; SHIN, Kang G.; "Techniques for Eliminating Packet Loss in Congested TCP/IP Networks", U. Michigan CSE-TR-349-97, November 1997	
	C22	SRINIVASAN, V.; VARGHESE, G.; "Faster IP Lookups using Controlled Prefix Expansion", ACM Transactions on Computer Systems, pp. 1-10, June 1998	
	C23	EATHERTON, William N.; "ASIC Based IPv4 Lookups", Washington University, Applied Research Laboratory, pp. 1-22, June 23, 1998	
	C24	EATHERTON, William N.; "Hardware-Based Internet Protocol Prefix Lookups", Thesis, Washington University, pp. 1-100, May 1999	
	C25	SRINIVASAN, V.; VARGHESE, G.; "Fast Address Lookups Using Controlled Prefix Expansion", ACM Transactions on Computer Systems, Vol. 17, No. 1, pp. 1-40, February 1999	
	C26	FILIPPI, E.; INNOCENTI, V.; VERCELLONE, V.; "Address Lookup Solutions for Gigabit Switch/Router", Globecom '98, Sydney, Australia, November 1998	
	C27	DEGERMARK, Mikael; BRODNIK, Andrej; CARLSSON, Svante; PINK, Stephen; "Small Forwarding Tables for Fast Routing Lookups", Proc. of ACM SIGCOMM, pp. 3-14, September 1997	
	C28	DOERINGER, Wilibald; KARJOTH, Gunter; NASSEHI, Medhi; "Routing on Longest-Matching Prefixes", IEEE/ACM Trans. On Networking, Vol. 4, No. 1, pp. 86-97, February 1996	
	C29	TZENG, Henry Hong-Yi; PRZYGIENDA, Tony; "On Fast Address-Lookup Algorithms", pp. 1067-1082, IEEE Journal On Selected Areas In Communications, Vol. 17, No. 6, June 1999	
	C30	TZENG, Henry Hong-Yi; "Longest Prefix Search Using Compressed Trees", Globecom '98, Sydney, Australia, November 1998	
D.O.	C31	KUMAR, Vijay P.; LAKSHMAN, T.V.; STILIADIS, Dimitrios; "Beyond Best Effort: Router Architectures for the Differentiated Services of Tomorrow's Internet", IEEE Communications Magazine, pp. 152-164, May 1998	

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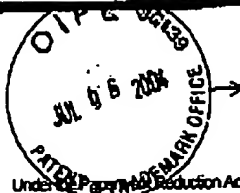
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# **INFORMATION DISCLOSURE STATEMENT BY APPLICANT**

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Sheet 3 of 4

## **Complete if Known**

Application Number	08/465,705
Filing Date	December 17, 1999
First Named Inventor	James Aweya
Art Unit	2662
Examiner Name	David Ollman
Attorney Docket Number	82269-2

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## **OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS**

Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
DO-	C32	GUPTA, Pankaj; LIN, Steven; McKEOWN, Nick; "Routing Lookups in Hardware at Memory Access Speeds", IEEE INFOCOM, April 1998	
	C33	NILSSON, Stefan; KARLSSON, Gunnar; "Fast Address Lookup for Internet Routers", IFIP Workshop on Broadband Communications, pp. 10-22, April 1998	
	C34	WALDVOGEL, Marcel; VARGHESE, George; TURNER, Jon; PLATTNER, Bernhard; "Scalable High Speed IP Routing Lookups", Proc. Of ACM SIGCOM, September 1997	
	C35	LAMPSON, B.; SRINIVASAN, V.; VARGHESE, G.; "IP Lookups Using Multitway and Multicolumn Search", pp. 1-23, August 1997	
	C36	ZITTERBART, M.; HARBAUM, T.; MEIER, D.; BROKELMANN, D.; "HeaRT: High Performance Routing Table Look Up", IEEE Workshop Architecture & Implementation of High Performance Communications Subsystems, Thessaloniki, Greece, June 1997	
	C37	FULLER, V.; LI, T.; YU, J.; VARADHAN, K.; "Classless Inter-Domain Routing (CIDR): an Address Assignment and Aggregation Strategy", RFC 1519, Internet Engineering Task Force, September 1993	
	C38	PEI, Tong B.; ZUKOWSKI, Charles; "Putting Routing Tables in Silicon", IEEE Network Magazine, pp. 42-50, January 1992	
	C39	MORRISON, Donald R.; "PATRICIA - Practical Algorithm To Retrieve Information Coded in Alphanumeric", Journal of the Association for Computing Machinery, pp. 514-534, Vol. 15, No. 4, October 1968	
	C41	GHANI, Nasir; "Enhanced TCP/IP ACK Pacing for High Speed Networks", Proc. 16th Int'l Teletraffic Congress, Edinburgh, Scotland, June, 1999	
	C42	MA, Jian; "Improving TCP Performance in IP networks with Wireless links", IEEE, ICPWC '99, Jaipur, India, pp. 211-215	
	C43	NARVAEZ, Paolo; SIU, Kai-Yeung; "Acknowledgement bucket scheme for regulating TCP flow over ATM", Computer Networks and ISDN Systems, IEEE Globecom '97, Phoenix, Arizona, November, 1997 pp. 1775-1781	
	C44	NARVAEZ, Paolo; SIU, Kai-Yeung; "An Acknowledgement Bucket Scheme for Regulating TCP Flow over ATM", IEEE Globecom '97, Phoenix, Arizona, November, 1997	
DO,	C45	KIOKE, Arata; "TCP Flow control with ACR information", ATM Forum Contribution 97-0758R1, November, 1997	

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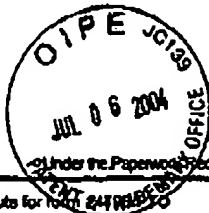
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**INFORMATION DISCLOSURE  
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Sheet 4 of 4

**Complete if Known**

Application Number	09/465,705
Filing Date	December 17, 1999
First Named Inventor	James Aweya
Art Unit	2682
Examiner Name	David Colvard
Attorney Docket Number	82269-2

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D.O.	C46	STEVENS, W.; Memo (IETF RFC 2001): "TCP Slow Start, Congestion Avoidance, Fast Retransmit, and Fast Recovery Algorithms". January, 1997	
	C47	KARN, P.; "Dropping TCP acks", Mail to the end-to-end mailing list, February, 1996	
	C48	ASTROM, K.; HAGGLUND T.; "PID Controllers: Theory, Design and Tuning", Instrument Society of America, 1995, pp. v, 80-91	
	C49	RAMAKRISHNA, M.V.; FU, E.; BAHCEKAPILI, E.; "Efficient Hardware Hashing Functions for High Performance Computers", pp. 1378-1381; IEEE Transactions on Computers, Vol. 46, No. 12, December 1997	
	C60	JAIN, Raj; "A Comparison of Hashing Schemes for Address Lookup in Computer Networks", pp. 1-17; Technical Report DEC-TR-593 Digital Equipment Corporation, February 1989	
	C51	MCKENNEY, Paul E.; "High-Speed Event Counting and Classification Using a Dictionary Hash Technique", pp. III-71 - III-75; International Conference on Parallel Processing, 1989	
V.A.	C52	CARTER, Larry; FLOYD, Robert; GILL, John; MARKOWSKY, George; WEGMAN, Mark; "Exact and Approximate Membership Testers"; Proc. 10th Annual ACM Symposium on Theory of Computing, pp. 59-65, May 1978	

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